

Abstract

In an apparatus for the thermal treatment of granular solids for performing endothermic reactions CO_2 and/or water is split off from the solids in a reactor, wherein fuel is burnt in the reactor to produce combustion gas, the solids in the reactor are brought in fluidizing contact with the combustion gases, hot exhaust gas from the reactor is used for preheating the solids, and solids are withdrawn from the reactor. The reactor constitutes an approximately cylindrical, lying cyclone with an approximately horizontal axis of symmetry and swirling, where fuel, solids and gases are introduced into the reactor in an inlet area thereof by forming a turbulent flow in the inlet area, and solids and hot gas are withdrawn from an outlet area of the reactor.